Justine M. Kasznica: Pittsburgh Can Be the Center of a New Industrial Revolution — For Space

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(by **Justine Kasznica**)

For more than half a century, space exploration has been defined by brief human visits to space and to the moon. The NASA Apollo missions proved humanity could reach the Moon, while the International Space Station demonstrated that humans could live in space for extended periods. But these efforts, remarkable as they were, remained temporary by design.

A week before the launch of NASA's Artemis II crewed lunar orbit mission, NASA unveiled plans to establish a permanent lunar base near the Moon's south pole. The effort includes at least two crewed missions per year, a 30-lander robotic campaign, and major investments in habitats, mobility systems, and — most notably — an interoperable lunar power grid and communications network. NASA will invest $30 billion over the next decade.

NASA also announced Space Reactor-1 Freedom, a nuclear-powered interplanetary spacecraft targeting a Mars launch by 2028 and a new plan for the International Space Station that expands the current platform with government and commercial modules rather than retiring it. Funding will come from repurposed programs and more efficient use of existing resources.

While public attention for this new effort will naturally gravitate toward launch sites in places like Florida and mission control centers in Texas, the deeper economic opportunity lies in the industrial backbone needed to sustain this vision. In particular, Pittsburgh and the broader Keystone Region including Ohio and West Virginia.

Building in space

NASA is signaling something far more ambitious than exploration. It is laying the groundwork for permanence, building in space with commercial industry at the helm.

The agency is moving away from symbolic milestones toward sustained infrastructure, assembling the foundation for a permanent human presence beyond Earth. It is creating a space-based industrial economy, one that will depend on supply chains spanning manufacturing, energy, robotics, materials science, and logistics. NASA is becoming an anchor customer catalyzing entire industries.

This region brings a unique combination of strengths aligned with a lunar economy. Its legacy in energy, robotics, and advanced manufacturing positions it to produce critical components for space infrastructure. The same expertise that once powered America's industrial rise can now be redirected toward building systems for the lunar surface.

Importantly, the region is not starting from scratch. Companies like Astrobotic Technology in Pittsburgh are already contributing to NASA's lunar ambitions through landers, delivery systems, and lunar power technologies. Other Pennsylvania-based firms, including Westinghouse, Ansys, and Advanced Cooling Technologies, are leaders in space nuclear technologies, computing and simulation, and thermal technologies respectively.

Building here for space

This growing base of activity provides a nucleus for a broader network of manufacturers, robotics firms, materials companies across Pennsylvania, Ohio, and West Virginia.

The region is further strengthened by research institutions, space-oriented institutes and centers, and strong community colleges and technical schools. southwestern Pennsylvania's leadership in robotics and AI — particularly in the Pittsburgh area — positions it to develop technologies for autonomous construction, maintenance, and operations on the Moon.

NASA assets such as the Glenn Research Center in Ohio and the Independent Verification and Validation Facility in West Virginia offer critical capabilities directly tied to propulsion, power, communications, materials development and mission assurance.

Energy is another of the region's advantages. Decades of expertise in reactor and grid technologies translate directly to the challenge of powering off-world systems.

Finally, the region can play a catalytic role in NASA's Ignition plans and implementation, by developing the innovations needed to sustain human health, enable closed-loop life support, and support long-duration survival in extreme extraterrestrial environments.

As NASA deepens its reliance on commercial partnerships, a wide network of companies will be needed to deliver the systems required for sustained lunar operations. The Keystone Region is well positioned to compete in the specialized manufacturing and engineering layers of this supply chain.

Building the 21st century

What is unfolding is not just another phase of space exploration. It is the early stage of a new industrial revolution.

The Keystone Region helped build the infrastructure that powered the 20th century. It will help build the infrastructure that could define the 21st and beyond.

But this opportunity will not materialize on its own. Capturing it will require state-level action and investment as well as coordinated action across states and sectors. Pennsylvania, Ohio, and West Virginia must position themselves as a unified industrial space corridor, aligning workforce development, strengthening university-industry partnerships, and engaging proactively with federal agencies.

The question is no longer whether humanity will establish a lasting presence in space. NASA's plans make clear that it will. The question is which regions on Earth will help make it possible and who will benefit when they do.

Justine Kasznica is a shareholder and chair of the Emerging Technologies Group at the Pittsburgh law firm Babst Calland and is a co-founder and board chair of the Keystone Space Collaborative, a nonprofit organization supporting the Tri-State Region's space industry.

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